THE

AMERICAN REVIEW OF TUBERCULOSIS ABSTRACTS

VOLUME LI MARCH, 1945 ABST. No. 2

Tuberculosis in Selectees.—The Army plans to exclude active or potentially active cases of tuberculosis. The current program rejects cases of active tuberculosis, cases with scarred infiltrative tuberculosis over 5 cm. in extent by flat film. (Those with lesions of this type under 5 cm. in extent and proven stable over a period of six months are acceptable.) Cases with small calcified lesions may be accepted, but large or numerous calcifications are left to the discretion of the examiner. The total rejectees on the basis of tuberculosis are in the neighborhood of 1.2 per cent. However, the efficiency of the screening process is not perfect. Long and Sterns revealed significant tuberculosis in 10/10,000 for the First Service Command, 13/10,000 for the Second Service Command, 5 and 7/10,000, respectively, for the Sixth and Seventh Service Commands, 36 and 44/10,000, respectively, for the Eighth and Ninth Service Commands. That is, approximately 1500 men in one million had tuberculosis of significance. The causes for these errors were listed as unskilled roentgenologists, obscuring of minimal lesions by bony structures, clerical errors, and speed, fatigue, monotony and strain leading to occasional error even by skilled radiologists. The number of tuberculosis patients at Fitzsimons General Hospital, to which all tuberculous soldiers go unless they have been transferred to Veterans' Administration or discharged to their own care, increased to a peak in March, 1943. A study is now in progress which is analyzing Army discharges from certificates of disability. Thirty per cent of Fitzsimons tuberculosis cases had been discovered within one month of induction, while 80 per cent had been discovered within six months. Case-finding in the Army consists of induction station X-ray film, X-ray films following onset of symptoms, physical examinations for admission to officer candidate schools, and X-ray films of every man discharged. Thus, over 10 per cent of the total population will have been X-rayed during the physical examinations incident to military service. Approximately 150,000 men will have been rejected for tuberculosis. Most of the open cases will undergo treatment with resultant arrest of a large number of cases and prevention of spread.—*The Occurrence of Tuberculosis in Supposedly Screened Selectees, A. Freer, Dis. of Chest, May-June, 1944, 10: 197.*—(*K. R. Boucot*)

Tuberculosis in Navy.—The Navy tuberculosis program includes preinduction X-ray examination, radiographic and clinical stud es with the onset of symptoms, instruction in personal hygiene, a well balanced diet and a sanitary environment. There is need for periodic X-ray studies with tuberculin testing when indicated, special studies of factors involved in the increased incidence in the hospital corps, culinary and engine room groups, etc., and an appreciation on the part of all Naval medical officers of the importance of chest X-ray films in the prompt diagnosis of pulmonary tuberculosis.—*Tuberculosis as a Navy Problem, D. E. Smiley & H. A. Raskin, Dis. of Chest, May-June, 1944, 10: 210.*—(*K. R. Boucot*)

Tuberculosis in Navy.—By means of fluorography the lungs of 479,373 apparently healthy naval recruits and 23,344 female naval recruits were examined. In the male series, 6,077, or 12.7 per thousand, showed radiographic signs of postprimary pulmonary tuberculosis, and in the female series the figure was 9.1 per thousand. The lesion was classified as minimal in 47.9 per cent of the male and in 55.4 of the female patients. The further care of such a large number of young people with radiographic evidence of minimal tuberculosis presents a serious problem. At first examination in the hospital, only 21 per cent of the male cases were judged arrested. Sixteen per cent could be declared active after preliminary tests were made. The remaining 63 per cent were put into the "doubtful" group and placed under supervision to determine the dynamic status of their lesions. The men were placed on light shore duty and studied extensively with all diagnostic means during a period of hospitalization, varying from three to six months over a two-year period. Of a total of 1,826 cases so observed, 191 eventually developed evidence of active tuberculosis. The incidence was much higher in the age group under twenty and decreased with advancing age. The risk of developing tuberculosis was greatest during the first six months after detection and decreased as time wore on. However, it was practically as great during the second six months' period, the incidence being 6.6 and 5.5 per cent, respectively. This experience teaches that all patients in whom tuberculosis has been diagnosed accidentally need careful work-up and observation over at least a year's time to determine if the radiographically demonstrated lesions are active. Employment under sheltered conditions is advisable during the observation period.—*Management of Minimal Pulmonary Tuberculosis, W. D. W. Brooks, Lancet, June 10, 1944, 246: 745.*—(*H. Marcus*)

Case-finding in Sailors.—Five hundred sailors in whom abnormalities of the lungs were discovered on miniature radiograms were subjected to a thorough investigation. Large films were made and the patients examined clinically, as well as by the usual laboratory methods. None of the patients had reported sick, and those that had symptoms in retrospect reported only those of minimal degree. Physical examination very rarely gave a clue as to the nature and location of the disease and could not be relied upon to make a diagnosis. Of the 500 cases, 134 were classified as fit for duty, 143 were recommended for a three months' observation period on shore duty, active tuberculosis with positive sputum or gastric was present 69 times, active tuberculosis with negative bacteriological findings was present 69 times, tuberculous lesions judged inactive but likely to break down under military service conditions were found 29 times, nontuberculous pneumonitis was present 22 times, and 34 patients were found to be unfit for service because of other conditions. The sedimentation rate was increased in only 27 of the 138 active cases. Tuberculin testing was of no assistance in evaluating the activity of the lesions, unless a change in reaction from negative to positive could be demonstrated.—*Case Finding by Mass Radiography, A. Kahan & H. G. Close, Lancet, May 20, 1944, 246: 653.*—(*H. Marcus*)

Tuberculosis in Industry.—Tuberculosis is one of the leading causes of death in the age group which is particularly important as industrial workers. The tuberculosis control office of the Public Health Service assists in mass chest X-ray examinations of workers in war industries and of families in war industry communities. In addition, it assists in transferring the rejected recruits to the local health authorities for further care. Eight transportable 35 mm. X-ray units and two 4 by 5 inch machines were procured for mass radiography. Local X-ray facilities are to be preferred to rapid film methods for small plants. The technique of mass radiography was greatly improved by the use of the Morgan phototimer which eliminates the measuring of the thickness of the chest, the setting of the timer, milliamperage or kilovoltage. Films produced with the aid of the phototimer are of

uniform quality thus facilitating their interpretation and reducing the factor of fatigue of the examiner. The efficiency in detecting early pulmonary lesions increases as one goes from 35 mm. up to 14 by 17 inch celluloid films. The method to be used for a particular industrial survey should be one which benefits the largest number of persons in that industry. During the year and a half prior to December, 1943 the field units of the Public Health Service examined 559,306 persons. Significant reinfection tuberculosis was found in one per cent; 62 per cent of them were minimal, 31 per cent moderately advanced, 7 per cent far advanced. It is important to examine all present employees all new employees and to make periodic reëxaminations. The significance of minimal lesions must be carefully evaluated; clinical studies, gastric lavage and comparison films at intervals of several months may be necessary to determine the activity of a minimal lesion. The rehabilitation of the tuberculous worker is of particular importance; sheltered employment, financial security and proper living conditions must be provided by careful planning. The coöperation of the local welfare agencies, the voluntary tuberculosis associations and the labor health committees with the health department and local physicians is necessary to insure a successful program of tuberculosis control. The Public Health Service will assist in the development of control programs by demonstration of new techniques, by offering consultations, by grants for follow-up facilities and by training of professional personnel.—*Conquest of Tuberculosis in Industry, H. E. Hilleboe & D. M. Gould, J. A. M. A., May 27, 1944, 125: 241.*—(*H. Abeles*)

Tuberculosis in War.—Among many factors that have been suggested as influencing the increase in tuberculosis mortality which accompanied the outbreak of war is that of lowered resistance to the disease by those already infected. The author attempted, by means of statistics, to verify this statement. The method of approach was to compare the interval between notification (registration as an infected person) and death for two periods in which death occurred: (*1*) the prewar years 1937–1939, and (*2*) the war years 1940 and 1941. Shorter average duration should appear in the second period if the original postulate is correct. Careful statistical study of these two groups failed to reveal any appreciable difference for either sex. The author therefore concludes that there is no evidence of a lowered resistance to pulmonary tuberculosis at the point at which duration was shortened and, hence, no evidence that lowered resistance was a causative factor in the increase of tuberculosis mortality which occurred in 1940–1941.—*Respiratory Tuberculosis, E. Lewis-Fanning, Brit. M. J., November 27, 1943, 2: 684.*—(*D. H. Cohen*)

Tuberculosis in War.—The authors have come to certain tentative conclusions about the sources of the increase in death from respiratory tuberculosis which occurred in 1940–1941 in England. A review of the statistics revealed that in the period 1923–1939, despite the rapid fall in the numbers of notifications of and deaths from respiratory tuberculosis, the average expectation, for a person just notified, of eventually dying of the disease remained remarkably constant at approximately one-half. Immediately before the war the average expectation of dying within a year of notification was about 22 per cent, and within five years about 44 per cent. Had the incidence of new cases continued to decline as in the pre-war period, instead of increasing, some 6,000 fewer deaths would have occurred during 1940–1943 under normal conditions. Owing to a temporary rise in short-term fatality during the severe conditions of 1940–1941, some 2,500 notified patients probably died in those years instead of in 1942–1943. Another 1,600 notified persons and about 1,000 unnotified persons who in normal circumstances would not have died of the disease at all must have died of respiratory tuberculosis during 1940–1941.—*Wartime Incidence of and Mortality from Respiratory Tuberculosis, P. Stocks & E. Lewis-Fanning,*

Brit. M. J., April 29, 1944, 1: 581.—(D. H. Cohen)

Tuberculosis in London.—The author offers a brief note on the morbidity and mortality statistics of tuberculosis in London, reported in the year 1942. This is a follow-up of a previous article covering the years 1938–1942. Analysis reveals that the rates for children have improved compared with 1941. The importance of returning evacuees, improved in health by their stay in the country, is discussed. The incidence of new cases among adults continues to increase, but at a smaller rate. The undiminished pressure of war production, the effects of the black-out on ventilation, and the shortness or absence of holidays, no doubt all contribute to the upward trend. The tuberculosis mortality was considerably lower in 1942 than in 1941. It has been pointed out that the high mortality of 1941 probably has temporarily reduced the proportion of advanced cases within the tuberculous population and that the mortality rate may be expected to rise again when the increased incidence of active disease which occurred in 1940–1941 begins to influence the death rate.—*Tuberculosis in London, W. A. Daley & B. Benjamin, Brit. M. J., December 4, 1943, 2: 712.—(D. H. Cohen)*

Tuberculosis in Puerto Rico.—Tuberculosis causes nearly one-half of all deaths between the ages of nineteen and thirty-five in Puerto Rico. In 1933, after twenty years of steadily increasing mortality rates, the peak of 337 was reached. Alarmed public health officials tripled the number of available beds in 1934, but the total thus reached was only 1,500 when, according to National Tuberculosis Association standards, the 5,000 annual tuberculosis deaths called for more than 10,000 beds. Puerto Rico is densely populated and poverty-stricken. Most inhabitants live under crowded slum conditions favoring spread. Without adequate hospital beds, therefore, isolation is impossible, but ambulatory pneumothorax was resorted to in an effort to control open cases. A vigorous campaign for early diagnosis was conducted. The first pneumothorax clinic was opened in 1935 and, by the end of the fourth year, nearly 2,000 ambulatory cases were being treated. The mortality curve began dropping and, six years after the beginning of the campaign, the mortality rate had dropped 20 per cent. However, in 1941, the death rate was still 245, five and a half times that of the continental United States. Pneumothorax can control a certain number of open cases, but the majority remain a menace unless hospitalized. With the required number of hospital beds, the cost of an adequate program would be 50 million dollars for the first five years, an impossible undertaking for Puerto Rico without federal aid which is now being sought.—*The Tuberculosis Problem in Puerto Rico, Editorial, J. Rodriguez Pastor, Dis. of Chest, September-October, 1944, 10: 447.—(K. R. Boucot)*

Tuberculosis in South Africa.—The population of South Africa consists of four "races": European, colored, Bantu, Asiatic. In Natal the incidence of tuberculosis in the natives depends on the kind of life they are living: (*1*) The incidence in those who live a pastoral existence in the tribal reserve is 0.25 per cent. (*2*) It is 0.75 per cent in those who are more crowded but live a lazy life in the mission reserve. (*3*) It is 1 to 1.5 per cent in the periurban block belt where the natives work harder. (*4*) It is 1.5 to 2 per cent among the hard working urban dwellers. The fulminating cases of tuberculosis seen in the gold mines occur in the first few months of a period of work. "Race" *per se* does not seem to be an important factor in the development of tuberculosis; diet and physical effort are probably of greater importance. The three non-European groups have a high death rate. In 1941 in Indians it was five times, in the Bantu seven times and in the colored ten times the European death rate. The death rates of tuberculosis in South African Europeans by age are similar to those in New York. In females between the ages of twenty and thirty, tuberculosis deaths are 15 per cent of deaths from all causes. In males between the

ages of forty and fifty-five, tuberculosis deaths are 12 per cent of deaths from all causes. Lung abscesses are seen frequently in the Bantu race; they are due to aspiration of the vomitus when these people are in coma after beer-drinking celebrations. Amebiasis of the lungs occurs and may closely simulate tuberculosis; the differential diagnosis can be made by the effectiveness of emetine and carbosone in the treatment of amebiasis. Syphilis of the lung is not uncommon in the Bantu and in the Cape colored; the lesions disappear with antisyphilitic treatment. Fungus infections of the lung are seen occasionally. Parasitic infections with *Schistosoma hematobium* and *Ascaris lumbricoides* are very common. Silicosis occurs in people working in the gold mines. Two cases of Loeffler's eosinophilic infiltration of the lungs were seen in Indians. Tuberculosis was spread in South Africa by patients from Europe who came since 1880 to cure. About 1900 there was a great increase of tuberculosis among the natives. The first Tuberculosis Commission was appointed in 1912. In 1919 a Department of Public Health was established. In 1920 the first sanatorium was opened at Nelspoort in the Cape. A Tuberculosis Research Committee was founded in 1925. In June, 1942, 515 beds for European and 2,000 beds for non-European patients with tuberculosis were available. The annual deaths were 750 in Europeans and about 15,000 in non-Europeans. A plan for controlling tuberculosis in South Africa is outlined.—*A South African Team Looks at Tuberculosis, B. A. Dormer, J. Friedlander & F. J. Wiles, with a Preface by P. Allan, Proc. Transvaal Mine Medical Officers' Assoc., November, 1943, No. 257.*—(*G. C. Leiner*)

•

Tuberculosis in Students.—Tuberculin tests and roentgenological examinations have been compulsory for the students of the medical, agronomic, veterinary and economic sciences of the University of Buenos Aires since 1939. Of a total of 8,186 students, the average of tuberculin-positive was 70.1 per cent among those who entered the University, 70.7 per cent in males and 67.4 per cent in females. The average rose to 97.5 per cent among the medical students of the sixth and seventh year. Only the latter group could be studied for manifest tuberculosis and 5 per cent of these showed active lesions. The incidence is three to four times higher than that in the other candidates. The increase of tuberculosis is due to the exposure in hospitals and to the living in boarding houses, to the type of life, practical work, sports, extensive plans for study, examinations and competitive activities. The prognosis of tuberculosis in University students seems to be more favorable than in youngsters of the same age and activities of different social strata, owing to better economical standards, to early recognition and treatment of the condition and to the predominantly primary character of the tuberculous lesion.—*Indices de tuberculization de morbilidad tuberculosa en los estudiantes de la Universidad de Buenos Aires, R. F. Vaccarezza & B. Enquin, Rev. Argentino-Norte-Americana de Ciencias Medicas, November, 1943, 1: 714.*—(*F. G. Kautz*)

Primary Tuberculosis in Nurses.—Of 3,764 nurses entering training schools, 19.2 per cent were tuberculin-negative. Of the positive group, which comprises 80.8 per cent of all entrants, 30.5 per cent were positive only to comparatively large doses of tuberculin, that is, 1:1000 and 1:100. The number of negative reactors was greater in the younger age groups, amounting to 27.4 per cent in the seventeen year olds. A total of 285 nurses became Mantoux positive within the first year of training, that is, 78 per cent of all nurses who had "Mantoux conversion" did so within the first year of their training. The conversion rate is higher in institutions which do not select their patients but which admit terminal cases of tuberculosis. These nurses also show sensitivity to smaller doses of tuberculin, indicating a more massive infection, and a higher degree of sensitization. No more than 3 out of 10 nurses who became positive had any kind of symptom during the critical period, and it is doubtful whether the symptoms complained of were referable to the

tuberculous infection. Of the 258 cases who showed conversion 33 developed clinical tuberculosis. One of the cases was an extrapulmonary disease. Six patients developed uncomplicated primary complexes. Two showed only a small pulmonary focus. Three patients developed pulmonary tuberculosis from a progressive primary focus. Pleurisy was present 13 times, in 9 patients with effusion. In 3 cases the pulmonary disease became apparent only after dissemination from the primary focus into other parts of the lung had taken place. Ten patients developed pulmonary lesions which could not be ascribed to the primary complex. They represent reinfection type lesions shortly after the primary infection had taken place. It is felt that the degree of sensitivity of previous nonreactors to tuberculin foreshadows the course the infection will take.—*Primary Tuberculous Infections in Nurses, M. Daniels, Lancet, August 5, 1944, 247: 165.*—(*H. Marcus*)

Primary Tuberculosis in Nurses.—In a previous report by the same author the tuberculin conversion from negative to positive among student nurses was analyzed. The incidence of tuberculosis in initially negative and initially positive students was compared, and the type of disease which developed in the two groups of nurses was analyzed. The tuberculosis morbidity is three and one-half times larger in the initially negative nurses. The annual rate per thousand was 7.4 in tuberculin-positive students and 24.8 in the negative group. This seems to indicate that previous infection with the tubercle bacillus confers a certain amount of specific, though by no means complete, immunity. However, the tuberculin-positive group represents a selected population because the highly susceptibles have been eliminated through disease which either killed them or made them unfit for nursing. Aside from acquired immunity due to previous infection, constitutionally inherited immunity plays an important rôle and explains why under identical conditions of exposure some nurses develop the disease and some do not. Morbidity following primary infection in student nurses is high. It is doubtful, though, whether it is really higher than in the general population, because the exposure is so much more massive and repeated. The clinical disease may represent secondary infection following closely upon the primary infection. From reports it appears that the tuberculosis infection rate is higher among nurses working in general hospitals than in tuberculosis sanatoria. The answer is found in the better precautions observed in the latter type of institution. In the absence of a reliable method of vaccination which would be the ideal solution to the problem, periodic tuberculin testing of negative reactors at three monthly intervals is indicated. Nurses who show Mantoux conversion should be observed with particular care and should be examined once a month, X-rayed every three months for the first year following conversion, and every six months for the next two years. Strict precautions in handling tuberculous patients and maintenance of a high standard of health and nutrition should be insisted on. —*Primary Tuberculous Infection in Nurses, M. Daniels, Lancet, August 12, 1944, 247: 201.* —(*H. Marcus*)

Tuberculosis in the Insane.—A roentgenological survey of a community of 2,239 patients with mental diseases revealed pulmonary tuberculosis in 3 per cent of the male and 1.9 per cent of the female inmates. During the prewar decades the female tuberculosis death rate at the same institution (Leavesden) exceeded the male, but since the outbreak of war the contrary has been the case. The author believes there are grounds for the opinion that the mobilization for active service of half the trained male nursing staff may have been a contributory factor. It is concluded that pulmonary tuberculosis constitutes a particularly formidable menace to closed communities composed of biologically inferior and mentally subnormal persons. The danger is increased when wartime circumstances modify their environment and regimen. Under such circumstances, there may be an incidence of

the disease so high that it may assume the proportions of a "local epidemic." Measures to cope with the situation are described. They include roentgenological examinations of all admissions, the segregations of suspects and arrested cases and the culture of stomach washings as a means of diagnosis.—*The Clinical Aspects of Pulmonary Tuberculosis in a Community of Aments, J. F. MacMahon, Brit. J. Tuberc., January, 1944, 38: 14.—(E. H. Rubin)*

Tuberculosis Control.—Analysis of the statistics of a large sanatorium demonstrates the well known fact that 90 per cent of all admissions are advanced cases. Only 10 per cent are minimal cases, and the number of patients who are discharged as apparently arrested or arrested is consequently small. The results of sanatorium treatment do not seem to justify the expenditure of public funds were it not for the fact that positive sputum cases are effectively segregated by hospitalization. This end is more important than the treatment of the individual case from the public health point of view. Because tuberculosis is still the most important disease causing death between the ages of twenty and forty, efficient case finding is the answer to the increasing tuberculosis rate. Every effort should be made to locate and treat the early minimal case. The army induction program has contributed towards this goal, but further efforts and funds must be expended in surveys of high school students, food handlers and certain classes of people from lower economic income groups where tuberculosis is known to be prevalent. The mobile X-ray unit may well be sent to districts of cities from where a high incidence is reported and the population may be surveyed by 4 x 5 photoroentgenograms such as are used in the Army. It is essential that such efforts at case finding be accompanied by appropriate laws making it impossible for positive sputum cases to leave the sanatorium at will.—*The Problem of Tuberculosis Control, J. A. Foley & J. B. Andosca, New England J. Med., July 20, 1944, 231: 86.—(H. Marcus)*

Survival Rates.—This article is a follow-up of a previous article which investigated 406 adult patients with sputum-positive tuberculosis. The diagnoses were made in the years 1928–1938 and this follow-up carries through 1942. It was observed that in those cases who survived ten years there were no further fatalities. However, nearly half of those who were alive after the first five years failed to survive the second five years. Analysis of the statistics to determine prognosis results in the following. It was found that the probability of surviving five years for the 211 males was 0.26 and for the 195 females 0.25. In summary, it was found that the best outlook is for those in middle life; the young and the elderly fare notably worse.—*Survival Rates in Pulmonary Tuberculosis, B. C. Thompson, Brit. M. J., December 4, 1943, 2: 721.—(D. H. Cohen)*

Childhood and Adolescent Tuberculosis.—The author summarizes fourteen years' research work in the field of childhood and adolescent pulmonary tuberculosis and its relation to adult tuberculosis. A series of seven "reports" are summarized. An early "report" (1930) analyzed mortality rates from tuberculosis in childhood for the period 1898 to 1917, in England and Wales, and brought out the following interesting facts: (*1*) the decline in mortality rate was greatest for children under five years old; (*2*) abdominal tuberculosis declined rapidly and tuberculous meningitis rose relatively; (*3*) although the mortality rate due to tuberculosis was greater in infancy than in later childhood, when taken in relation to the mortality rate from all causes, tuberculosis is a much less frequent cause of death in young children than in those approaching adult life; (*4*) before 1914 the 0–5 year age group had the highest tuberculous mortality; since 1914 the tuberculosis mortality rate has been considerably higher in young adult life and middle age than in infancy; (*5*) the mortality peak in adult life changed from the forty to fifty year group to the twenty to twenty-five year group; and (*6*) the importance of exposure in open cases of

tuberculosis was made very apparent. This report emphasized the improved position of tuberculosis in childhood and underlined the continuing and relatively increasing menace of young adult tuberculosis. The second "report" (1931) analyzed tuberculin testing of 1,220 children under fifteen and revealed the importance of contact with open cases. An interesting feature was the revelation that the results of tuberculin testing in a group of children with no history of contact scarcely differed from the results obtained in a group of children with a history of contact with a "closed" case of tuberculosis. The third "report" (1932) analyzed the results of a comparative study of X-ray findings and Mantoux reaction in 500 children. The conclusion here was that typical lesions of the adult type were uncommon in children under fifteen years of age. The fourth "report" (1933) dealt with a reinvestigation of Mantoux positive children. The great majority (96 per cent) remained positive. Sensitivity to tuberculin became more marked in the elapsed time. The figures also revealed that a high degree of sensitivity was reached at an early age in contact children. Whereas in the majority of noncontact children this degree of sensitivity was not reached at any age during childhood. The fifth "report" (1939) dealt with primary tuberculosis of the lungs in childhood and the conclusions reached were: (*1*) primary infection by tubercle bacilli is uneventful clinically and the lesion formed heals satisfactorily in most cases; (*2*) immediate and latent complications arise from the inoculant of the lymph nodes; (*3*) tuberculous meningitis has been, and still is, a serious outcome of tuberculous infection; (*4*) tuberculous morbidity and mortality in childhood are markedly influenced by exposure to infection; (*5*) the "adult type" of tuberculosis does not present a serious problem in childhood; and (*6*) in relation to pulmonary tuberculosis in childhood and even to tuberculous meningitis in childhood, pulmonary tuberculosis in adolescence and early adult life is a greater menace to the population. The sixth "report" (1937) analyzed the family histories of 1,000 patients, who had developed pulmonary tuberculosis, between the ages of fifteen and twenty-five. There was a history of contact in 40 per cent of the cases. Another aspect, constantly making itself apparent, was the advanced stage of tuberculosis reached before treatment was begun or was even sought by the young adult. The follow-up of many cases supported the author's hypothesis that perhaps the extensive lesions of adult disease are really in many cases deposited during adolescence with the accompaniment of slight, or, at any rate, unexplained constitutional disturbance; that these lesions are carried unrecognized, perhaps extending slowly and without symptoms, until they make their presence known in adult life, either by reason of their spread past a definite point or because some environmental cause allowed their reactivation. The seventh "report" (1936) deals with investigation of 2,381 apparently healthy young people between fourteen and twenty-one years old. Here it was revealed that there was a definite incidence of pulmonary tuberculosis in 0.65 per cent and a possible incidence in 1.08 per cent. Here, then, was a means of detecting at a really early stage adolescent lesions which later would give rise to clinical disease, and a means of providing the clinician with material at a stage in which treatment should be easy compared with well established lesions which they cannot hope to cure, but only to arrest. This group of healthy adolescents is a very difficult one to treat. At the present time, they are, when detected, handled in one of the four following ways: (*1*) they are ignored or merely observed for a period; (*2*) they are kept under careful observation with improvement in their home environment; (*3*) they are sent to a sanatorium; and (*4*) they are treated by artificial pneumothorax. Because of the economic factor, as well as the general disregard for sanatorium treatment in the symptomless adolescent, the author believes that a shallow pneumothorax should be induced in all these cases, bilateral if necessary, and for a period of two to three years. The time element has been too short thus far for a fair appraisal of this form of

treatment.—*Childhood Infection and Its Relation to Adolescent and Adult Pulmonary Tuberculosis: A Record of the Brompton Hospital Research Department during the Last 14 Years, A. M. C. Macpherson, Brit. M. J., July 24, 1943, 2: 98.*—(*D. H. Cohen*)

Bovine Tuberculosis.—The authors reviewed the incidence of pulmonary tuberculosis of bovine origin since 1934 in a series of 2,101 cases treated at a sanatorium. There were 48 cases of bovine origin, or 2.28 per cent. Isolation was by culture on a modified Loewenstein-Jensen medium and in a few instances guinea pig inoculation was necessary. In 2 cases treated by pneumothorax, in which effusions developed, typical bovine tubercle bacilli were isolated from the effusions as well as from the sputum. The incidence of 2.28 per cent is the highest recorded in England, though considerably less than the lowest Scottish figures. No children under fifteen were included in this study. A breakdown of the figures reveals a rate of 2 per 100,000 in the city and urban population and a rate of 16 per 100,000 in the rural population. The methods of infection are three: (*1*) alimentary ingestion of infected material, most commonly milk, either raw or insufficiently heat-treated; (*2*) air-borne droplet infection—contact with cattle; or (*3*) air-borne droplet infection—human to human. In analyzing the series of 48 cases, the probable mode of infection was alimentary in 16 (33 per cent); air-borne cattle-contact in 10 (21 per cent); air-borne familial in 3 (6 per cent) and in 19 cases (40 per cent) no definite evidence could be ascertained as to method of infection. Details are given of three families, in each of which 2 members were found to have pulmonary tuberculosis of bovine origin. The original source of infection in each family was probably contact with tuberculous cattle, and the subsequent infection of the other member was probably due to human transmission of bacilli of bovine type.—*Pulmonary Tuberculosis of Bovine Origin: With Notes on Bovine Infection in Three Families, I. J. Cutbill & A. Lynn, Brit. M. J., February 26, 1944, 1: 283.*—(*D. H. Cohen*)

Tuberculosis in Newborn.—Congenital tuberculosis is rare. Whether or not the fetus will be infected depends entirely on the type of tuberculosis present in the mother. Isolated pulmonary tuberculosis carries no danger for the fetus, but is extremely dangerous for the newborn infant. When the mother has miliary tuberculosis the fetus is usually affected, but not necessarily so. In protracted hematogenous dissemination with tuberculosis of the endometrium, the fetus is always infected and abortion or stillbirth is the rule. Congenital tuberculosis of the fetus or newborn can only be diagnosed if three conditions are fulfilled. The mother must have tuberculosis, tuberculosis in the child must be proved by organ section or cultural methods and neonatal tuberculosis must have been excluded with certainty. In congenital tuberculosis the primary focus is usually in the liver where it originated through infection via the umbilical vein. However, other types of congenital tuberculosis have been reported. Massive infection may flood the organism through the ductus venosus. Many primary pulmonary foci are then the rule. Another mode of infection is through aspiration or ingestion of infected amniotic fluid. The infected fetus is usually stillborn or survives but a short time. Several cases are known, however, where the mother died of miliary tuberculosis and a healthy child was delivered by Caesarean section shortly before the mother's death. This would seem to be the treatment of choice where the diagnosis of miliary tuberculosis is absolutely certain. It is preferable to perform section before the onset of labor.—*Die prognostische Bedeutung der mütterlichen Tuberkulose für das Neugeborene, E. Held, R. Rehsteiner & E. Uehlinger, Schweiz. med. Wchnschr., April 8, 1944, 74: 365.*—(*H. Marcus*)

Lower Lobe Tuberculosis.—True basal lesions are rare, but lesions in the apex of the lower lobe are quite frequent. The incidence

is given as from 0.5 to 4 per cent of all sanatorium admissions. It is convenient to differentiate between pure and impure lower lobe tuberculosis. In the former, the lesion in the lower lobe is the sole tuberculous focus. In the impure form the lesion in the lower lobe is the active lesion, but fibrotic or minor upper lobe lesions are present. The incidence is greater in women than in men, and the right lung is affected more frequently than the left. The pathogenesis of the pure type is probably an extension of the primary parenchymal focus or of the lymph node component of the primary focus. The impure type is particularly prone to occur in women. Improper ventilation of the apex of the lower lobe may be the key to the pathogenesis in this type of lesion. Bronchogenic spreads to the lower lobes show a good tendency to clear. A spreading lesion in the lower lobes, therefore, spells a bad prognosis. In making a diagnosis of lower lobe tuberculosis, lateral X-ray films must be taken and a positive sputum is a prerequisite for the diagnosis, especially of the pure type. The differential diagnosis includes bronchiectasis, which is difficult to exclude at times, especially when old apical lesions are present. Other diseases to be differentiated are: atypical pneumonias, lung abscess, mycoses, and neoplasms. Treatment of this form of tuberculosis is the same as of upper lobe tuberculosis. In pneumonic lesions it is wise to await cavitation before inducing pneumothorax. Phrenic paralysis alone is not very helpful, but it has a place in conjunction with pneumothorax or thoracoplasty. Thoracoplasties often require the removal of eleven ribs, including the anterior segments, and lobectomy or pneumonectomy would seem a better solution in some cases.—*Tuberculosis of the Lower Lobe, A. Z. Ossen, New England J. Med., June 8, 1944, 230: 693.*—(*H. Marcus*)

Treatment of Pulmonary Tuberculosis.—This article was taken from a Memorial Lecture delivered in honor of Sir Pendrill Varrier-Jones and consists of many and varied remarks about the diagnosis and treatment of pulmonary tuberculosis. The Papworth settlement is particularly stressed. In discussing the selection of patients for different forms of treatment the author differentiates four groups. In the first group, at the time of diagnosis, the patients are immediately suitable for sanatorium treatment. In the second group, which comprises a larger number, the patients will require a period of initial treatment either in a tuberculosis hospital or in the nursing block of a sanatorium. A third group of patients are suitable for treatment in a tuberculosis hospital. Some of them are unlikely to derive benefit in the future from sanatorium treatment; but others, following surgical therapy, will require a period of sanatorium treatment. In the final group of patients the disease at the time of diagnosis is too advanced and extensive for sanatorium treatment; palliative treatment, either in the tuberculosis hospital or at home is required. At Papworth, of primary importance is the fact that the consumptive remains under continuous supervision—medical, psychological and social. He passes through the stages of hospital and sanatorium treatment, and is provided with occupation suited to his state of health. When afebrile he works at a trade, for which he receives the trade union rate of wages. He and his family reside in the village settlement. If at any time his health relapses he is sure of prompt and expert treatment in the institution. Preliminary studies now reveal that none of the children born in Papworth Village have contracted tuberculosis of the lungs, glands, bones, or joints or, indeed, in any known clinical form. There has been no case of tuberculous meningitis. X-ray findings indicate that an appreciable proportion of the children have been infected by tuberculosis like the rest of the adult population. In view of the expected increase in tuberculosis morbidity and mortality following this war, the author suggests expansion of the present facilities of such places as Papworth, so as to take care of the tuberculous veteran and his family.—*The Comprehensive Attack on Pulmonary Tuberculosis, A. S. MacNalty, Brit. M. J., November 13, 1943, 2: 599.*—(*D. H. Cohen*)

Lunula of Finger Nails.—In a previous study done in 202 patients with pulmonary tuberculosis, the tendency on the part of the lunulae to disappear during the disease had been found. The diminution in size of the lunulae was greatest in patients who had tuberculosis and silicosis and in patients who were dyspneic. In this paper the observations on another 230 patients with pulmonary tuberculosis are discussed. One hundred and eighty-eight patients with far advanced and 42 patients with moderately advanced disease are compared with 100 controls. The average width of the lunulae in moderately advanced and in far advanced cases was definitely less than in the controls and in the far advanced cases less than in the moderately advanced cases. The lunulae were absent from all finger nails in the moderately advanced group approximately six times more frequently than in the controls. The lunulae were absent from all finger nails in the far advanced group ten times more frequently than in the controls. These changes are probably due to circulatory disturbances.—*The Lunula of Finger Nails in Tuberculosis, A. L. Banyai & A. V. Cadden, Urol. & Cutan. Rev., July, 1944, 48: 330.*—(*G. C. Leiner*)

Pulmonary Tuberculosis and Leprosy.—The generalized dissemination of Hansen's bacilli and their localization in the lungs is not an infrequent occurrence in lepers. Although Danielsen's theory that the bacillus of tuberculosis and that of leprosy may be particular forms of the same germ which have changed according to the environment is not generally accepted anymore, the association of tuberculosis and leprosy in the same individual appears very frequently. Some claim that leprosy and tuberculosis coexist in as many as 45 per cent of the cases of leprosy. Clinical data and autopsy reports of 12 lepers are presented. Lesions of the respiratory system were encountered very frequently, even in those cases in which there were no clinical signs. Pulmonary tuberculosis was encountered in 5 of those 12 cases. In one case there were pulmonary lesions due to tuberculosis and lesions which were believed to be due to leprosy. The diagnosis of tuberculosis is very difficult and the importance of inoculation of suspected material into guinea pigs is particularly stressed.—*La tubercolosi polmonare e le localizzazioni lebbrose nei polmoni nel decorso della lebbra, A. Cherici & G. Rizzi, Riv. di tisiol., 1942, 15: 134.*—(*G. Simmons*)

Tuberculosis and Atelectasis.—True atelectasis is the absence of air in the alveoli, owing to intraparenchymatous causes. The most accepted view concerning the mechanism of this process is that of the absorption of the intraälveolar air after the afferent bronchus has been obstructed. There is, however, much clinical and experimental evidence in favor of the more modern concept that sees the cause of atelectasis in an active expulsion of the air from the alveoli. The correct understanding and interpretation of the atelectasis is indispensable to avoid diagnostic mistakes and to conduct properly certain therapeutic procedures. The "lobitis" described by Léon Bernard as a massive sclerotic lesion with extensive pleural adhesions, is very often due to a lobar atelectasis associated with tuberculous lesions, as the possibility of instituting a pneumothorax with selective collapse and the successive complete reëxpansion of the lung proves it. The sudden appearance of a massive density, simulating a tuberculous infiltration, may often be caused by atelectasis. The characteristic triangular shadow in the cardiophrenic angle can also be due to pulmonary atelectasis, mostly of the right middle lobe. The presence of a circumscribed area of atelectasis around the pulmonary insertion of a pleural adhesion is a frequent thoracoscopic finding. This type of atelactasis is called by the author "partial acinous atelectasis." The modern view of Viola considers the atelectasis as due to an active contraction of the alveoli, caused by a reflex increase of the physiological pulmonary tonus. The presence of a bronchial obstruction is not always demonstrated in cases of atelectasis. The disappearance of the atelec-

tasis after bronchoscopy in the absence of bronchial obstruction can be explained by the abnormal stimuli brought upon the bronchial tree by the procedure or, rather, by the anesthesia. On the other hand, the observation of breathing areas in an atelectatic lobe speaks also against a purely mechanical origin of the phenomenon. The partial acinous atelectasis suggests a nervous distribution. The inflammation of the serosa may produce an atelectasis through a pleuropulmonary reflex mechanism, even before the appearance of an effusion. Unsuccessful attempts at pneumonolysis, without any modification in the degree of collapse, may be followed by atelectasis. It is not known how and where this reflex mechanism originates; it is, however, admitted that the pleura, the subpleural tissue and the bronchial mucosa may be the regions where the reflex arch is initiated. The contraction of the alveoli would precede the absorption of the air and would represent the essential factor in the atelectasis. Atelectasis can be provoked experimentally by the action of acetylcholine, histamine etc., or by simple irritation of the pleura. The effect of acetylcholine on the alveoli may be demonstrated experimentally and also during thoracoscopic examination. Experimental atelectasis in the guinea pig may assume either the massive type or the disseminated type. The known laws of gaseous exchanges speak also against the theory of a simple obstructive mechanism in the pathogenesis of atelectasis. The absorption of the alveolar air is certainly possible as long as the pulmonary circulation persists, but it could not continue after the equalization of the partial pressures of the gaseous components of the alveolar air and the blood had been obtained. The complete absorption of the alveolar air can only be understood if we admit an active contraction of the alveolar wall; thus, the partial pressures of the components of the alveolar air would be maintained at a level superior to that of the gases of the blood and the process of absorption would continue until it is complete. The existence of a physiological tonus is admitted for other organs, its possible function was disregarded until now only in the case of the lung. The anatomical substratum of the pulmonary tonus is uncertain: interalveolar muscle plexuses have been found by some authors; the presence of muscle cells in the alveoli is, however, not indispensable to explain their contractility. The capillaries contract without the presence of muscle cells in their walls and it is recalled that capillaries are important components in the alveolar wall. Atelectasis influences the tuberculous process in various manners; pericavitary atelectasis favors the enlargement of the cavity, while atelectasis of an entire lung, or of an extensive part of it, has a beneficial effect on the regression of the lesions. The author thinks also that the mechanism of action of the Monaldi method is the irritating effect of the introduction of the tube and the consecutive atelectasis. Introducing into the cavity a massive rubber band, without the possibility of drainage, he claims to have had the same effect. The subcutaneous injection of small doses of acetylcholine may prove beneficial in certain cases where the Monaldi method has failed. The practice of pneumothorax gives also interesting examples of atelectasis of reflex origin; for instance, the immediate collapse of a lung after the first introduction of air when highly negative readings exclude the possibility of a perforation. The kinking of the main bronchus can also be discarded because of the rigidity of the anatomical structure of it, and also because a film taken in deep inspiration may show a good ventilation of the formerly atelectatic lung. The low intrapleural pressure due to atelectasis of the lung is the cause of the so-called effusion *ex vacuo*. The observation of the sudden reëxpansion of a lung collapsed by pneumothorax is a further argument for the reflex mechanism of atelectasis; in such cases probably antagonistic reflexes enter the scene, counteracting the reflex causing the exaggeration of the pulmonary tonus.—*Tuberculosis y atelectasia del pulmon, C. Xalabarder, Publ. d. Inst. Antituberc. "Francisco Moragas," Barcelona, 1943, 5: 89.*—(*L. Molnar*)

Bronchoscopy in Pulmonary Tuberculosis.—Drawing on their observations in nearly 500 bronchoscopies in a selected group of patients,

the authors have a rather complete set of color drawings to illustrate the various types of lesions encountered. They believe that tuberculosis in the parenchyma is always accompanied by changes in the mucous membrane of the draining bronchus, and that these changes are of the same nature as the pulmonary lesion and vary with the progress of that lesion. Hence the bronchoscopic observation of the varying changes in the bronchial lesion is of utmost importance in the management of collapse therapy. The effects of impaired drainage and ventilation by improperly managed or contraselective pneumothorax are often demonstrable. The method provides additional support to the belief that every pneumothorax should be a selective pneumothorax. The authors do not believe in cauterization of the superficial ulcers visible through the bronchoscope nor in instrumental dilatation of strictures. A large number of illustrative cases are given, showing how bronchoscopy can be of great help in the management of surgical collapse and for this reason make a strong plea that bronchoscopy as a specialty belongs in the field of the chest surgeon, who more than any other can make the most of it.—*Bronchoscopy in Pulmonary Tuberculosis, M. S. Lloyd & J. A. Burdetti, J. Thoracic Surg., October, 1943, 12: 668.—(W. M. G. Jones)*

Gastric Disturbances in Pulmonary Tuberculosis.—Thirty-seven per cent of 1 200 patients with pulmonary tuberculosis had gastro-enteric disturbances in the early stages of the disease. This percentage rose to 65 per cent if cases with anorexia as the sole gastric symptom were included. Dyspeptic symptoms were present in 42 per cent of cases of exudative and 18 per cent of cases of fibrotic disease. In the majority of cases there was gastric hyposecretion, hypoacidity and hypomotility. Salivary secretion also was diminished.—*Le disfunzioni gastro-enteriche nella tubercolodi polmonare, M. Valli, Riv. di tisiol., 1941, 14: 287.—(G. Simmons)*

Miliary Tuberculosis.—Forty-one cases of acute miliary tuberculosis were seen at the Hôpital Laval at Quebec. The age of the patients was between five and forty-nine years, 22 patients were eleven to twenty years old. There were 25 female and 16 male patients. Miliary tuberculosis was seen in city dwellers as often as in persons from rural districts. Thirty-one patients were observed until death; of these, 11 developed meningitis. Tubercle bacilli were found in the sputum in 20 cases, in the gastric lavage in 7 cases. Autopsies were done in 9 cases: in all of them pancreas and myocardium were free from tuberculosis. —*A propos des granulies aiguës, R. Desmeules, L. Rousseau & P. Richard, Laval méd., October, 1944, 9: 633.—(G. C. Leiner)*

Chronic Miliary Tuberculosis.—Chronic miliary tuberculosis (*"granulie froide"*) is rare. The diagnosis is possible only with the help of the X-ray picture. Two cases are reported: (*1*) A twenty-one year old man developed bilateral tuberculous pleurisy in 1936 and 1937. In 1942 a chest X-ray examination showed reticular and nodular infiltrations in both subclavicular regions. In April, 1943 these lesions were seen throughout both lungs. The patient lost 4 lbs., his temperature was never above 99°F. There was no cough, no expectoration. The patient died in June, 1943. (*2*) An eighteen year old man developed tuberculous epididymitis in August, 1941. One month later he started to cough and to run fever. A chest X-ray examination revealed numerous nodular and reticular shadows throughout both lungs and pleural effusion on the right. Within a year the infiltrations disappeared and in June, 1943 the chest X-ray showed no abnormalities. In February, 1944 the patient again developed cough. The chest X-ray showed soft infiltrations above and below the left clavicle. Chronic miliary tuberculosis can (*1*) disappear completely, (*2*) transform into caseo-cavernous or fibrotic tuberculosis, (*3*) turn into acute miliary tuberculosis.—*La granulie froide, R. Desmeules & P. Richard, Laval méd., October, 1944, 9: 625.—(G. C. Leiner)*

Intrapulmonary Injections in Tuberculosis. —Intrapulmonary injections of 2 cc. of car-

bolic acid have been advocated for the treatment of pulmonary tuberculosis by Roberts in British India since 1937. The author has practiced this method and he feels that the results have been satisfactory. After careful selection of the pulmonary area by stethoscopy and roentgenography, several injections in various spots are serially repeated. Although the method has not found any appreciable notice or recommendation by the Tuberculosis Association of India, the author suggests a fair trial. There is no technique described nor are the claimed results supported by statistics.—*Rôle of Intrapulmonary Injections in Tuberculosis in India, S. Swaroop, Indian M. J., September, 1943, 37: 128.*—(*F. G. Kautz*)

Diasone Reaction.—A patient with far advanced pulmonary tuberculosis received a total of 28.67 g. of diasone within a period of three weeks. On the twenty-second day of chemotherapy the patient developed a maculopapular eruption of the skin, sore throat and fever up to 102° F. The rash spread all over the body including the mucous membranes of the mouth and became vesicular and bullous in character. Six days after its appearance the rash disappeared with generalized exfoliation. The patient gave a history of having been treated with 2 g. of sulfonamide for four days about a year prior. At that time she developed a rash without systemic reaction. The reaction to diasone is interpreted as an idiosyncratic one. It was the only serious reaction to diasone encountered in a series of 63 patients.—*A Severe Reaction following Administration of Diasone, K. H. Pfuetze & Marjorie M. Pyle, J. A. M. A., June 3, 1944, 125: 354.*—(*H. Abeles*)

Miliary Tuberculosis of Pharynx and Larynx.—Miliary tuberculosis of pharynx and larynx has been described by Isambert in 1876. Two cases are reported: (*1*) The female patient complained of pain in her throat in December, 1942. A short time later she developed dysphagia and lost weight. Laryngological examination at the end of January, 1943 revealed a large superficial ulceration surrounded by fine granulations which extended over the soft palate, the pillars, tonsils, epiglottis and arytenoids. The diagnosis of miliary tuberculosis of the pharynx and larynx (*maladie d'Isambert*) was made. A chest X-ray examination showed some small shadows in the second and third left interspaces; one week later fine nodular shadows were seen throughout both lungs. The physical examination of the lungs gave normal findings. The patient died after one week. (*2*) An eighteen year old female patient was admitted on April 29, 1943, with moderately advanced caseo-cavitary tuberculosis of the lungs. In September, pharynx and larynx were found normal. In November the patient developed pain in her throat. On December 13, 1943, fine granulations and ulcerations were found on tonsils and pillars, and the diagnosis of miliary tuberculosis of pharynx and larynx was made. The patient became dysphagic and, at the end of December, there was a large superficial ulcer over the soft palate, tonsils, posterior wall of the pharynx. The patient became cachectic and died on January 11, 1944. Miliary tuberculosis of pharynx and larynx (*granulie pharyngo-laryngée, maladie d'Isambert*) is not rare. It runs an acute course. It starts in the pharynx and spreads later to the larynx. The main symptoms are dysphagia, asthenia, loss of weight, cachexia. The usual treatment of laryngeal tuberculosis is of no avail in these cases.—*La granulie pharyngo-laryngée, G.-L. Coté, Laval méd., October, 1944, 9: 641.*—(*G. C. Leiner*)

Laryngeal Tuberculosis.—On the basis of his vast experience the author is an enthusiastic supporter of attinotherapy for the treatment of laryngeal tuberculosis. Cemach's lamp has given the best results, but it is emphasized that general sanatorium care, in addition to the local treatment, is absolutely essential. Of 148 patients treated with this lamp, 90 were followed over "a long period of time," 46 were cured, 20 remained stationary and 24 "turned negative." The treatment consisted in irradiation of the laryngeal lesion

tor twenty to thirty seconds at weekly intervals. The total number of treatments was dependent upon the type of lesion present. In the majority of cases, however, considerable improvement was noticed after four or five treatments. The lamp and the technique of its use are described.—*Cura della tubercolosi laringea con la lampada di Cemach, F. D'Onofrio, Riv. di tisiol., 1940, 13: 41.*—(*G. Simmons*)

Bronchial Tuberculosis.—Tuberculosis of the trachea and main bronchi is comparatively rarely found at autopsy. Out of 206 consecutive autopsies, only 8 cases showed tuberculosis of the main bronchi and 2 of these had tuberculosis of the trachea as well. The incidence, therefore, is less than 5 per cent. All cases showed active cavitary tuberculosis with positive sputum. Primary tuberculosis of the trachea or main bronchi, in the absence of pulmonary tuberculosis, is practically unknown. It is likely that a local nonspecific damage to the bronchial wall precedes the development of tuberculous disease. Sputum clings to the damaged surface more easily than to the intact epithelium and constant contact with a bacilliferous sputum sets up the specific process. Pathologically four types of bronchitis are differentiated, but practically these types often show transition into each other. Caseous necrotic tuberculosis of the bronchus frequently gives rise to highly positive sputum and bronchogenic dissemination. Complete obstruction may occur in this type through blockage of the bronchus in the diseased region with caseous material, blood or mucus. The other three types, ulcerative productive disease, productive sclerosing involvement and hyperplastic tuberculosis, more often cause stenosis of the bronchus rather than complete obstruction or occlusion. However, any one of the three last named types may eventually lead to complete fibrous occlusion with atelectasis and shrinkage of the lung, with or without bronchiectasis as its consequence. It is important to differentiate obstruction from occlusion, and these again from compression from without. Compression of bronchi is frequently caused by enlarged lymph nodes; this is often seen in children and produces atelectasis of the lung or part of the lung. Reaeration with complete disappearance of the shadow is seen as the lymph node decreases in size and the compression is relieved. Although bronchial occlusion is considered an important factor in cavity healing when it affects the bronchi draining cavities, it is doubtful that occlusion of the main bronchi ever leads to cavity healing. The more usual course is infection behind the blockage resulting in bronchiectasis and suppuration. But even then the tuberculous process may disappear and only the results of secondary infection remain behind.—*Tuberkulose der Stammbronchien und tuberkulöse Bronchostenose, W. Berblinger, Schweiz. med. Wchnschr., April 8, 1944, 74: 348.*—(*H. Marcus*)

Tracheobronchial Tuberculosis.—In sanatoria where bronchoscopy is employed routinely, this complication of pulmonary tuberculosis is seen in from 10 to 15 per cent of all admissions. At autopsy tracheobronchial tuberculosis is much more frequent, principally because of the type of case that is autopsied when pulmonary tuberculosis is the cause of death. Clinically, four types of tracheobronchial tuberculosis can be distinguished, the discrete ulcer, the granulomatous ulcer, the tuberculoma and the diffuse bronchitis. The latter type is characterized by generalized redness without definite ulceration. The disease is more common in women than in men, supposedly due to the difference in respiration. The diaphragmatic type of breathing in men encourages better passage of air through the tracheobronchial tree. The lesions are usually found on the posterior wall of the trachea or bronchi. This is due to the horizontal position of the patient who is ill with pulmonary tuberculosis. Frequent and prolonged contact of the bronchial wall with tuberculous sputum seems to predispose to the development of bronchitis. The diagnosis should be suspected in any case where cough is out of proportion to the amount of pulmonary disease, where the sputum is bacil-

liferous out of proportion to the disease as seen on X-ray films, when constant rhonchi are found on physical examination, when the patient has asthmatoid attacks or when he is subject to attacks of acute cyanosis. The prognosis of pulmonary tuberculosis complicated by bronchial disease is bad. The mortality of such patients is higher, their cure is more prolonged and collapse therapy is more often ineffective. Bronchoscopy is important both in diagnosis and treatment. All patients should be bronchoscoped before they are subjected to collapse therapy because pneumothorax or phrenic crush seem contraindicated in high-grade stenosis. Bronchoscopy may be a life saving procedure in cases where severe stenosis has developed as a result of healing. Some specialists prefer not to treat endobronchial tuberculosis but rely on improvement of the general condition and energetic treatment of the underlying pulmonary lesion to cure the bronchial disease. Others advocate and use local application of the electrocautery or silver nitrate in solution from 5 to 20 per cent.—*De la tuberculeuse trachéo-bronchique, J. P. Secretan, Schweiz. med. Wchnschr., April 8, 1944, 74: 359.—(H. Marcus)*

Tracheobronchitis and Allergy.—At the Wisconsin General Hospital 100 patients with proved tuberculous tracheobronchial lesions were investigated to see if there was any clinical evidence of an allergic diathesis in these cases. Their deductions are as follows: "(*1*) Patients with tuberculous tracheobronchitis reacted more strongly to routine allergen skin tests than did tuberculous patients without such lesions. (*2*) Tuberculous tracheobronchitis occurred more frequently in women than in men. The most serious bronchial lesions occurred predominantly in women patients with clinical evidences of allergy. (*3*) Patients with tuberculous tracheobronchitis were not unusually reactive to tuberculin by skin test. However, those who were most sensitive to tuberculin were most sensitive also to the routine allergens by skin test. (*4*) There was a general correlation between a personal history of allergy and a positive reaction to routine allergens, although most patients with a negative personal history reacted to some allergens. There was an apparent direct relationship between a personal history of allergy and the presence of tuberculous tracheobronchitis. (*5*) Clinical evidence of tuberculous tracheobronchitis correlated well with the finding of bronchial lesions by bronchoscopy; eosinophilia did not. Reaction to the routine allergens did not correlate well with clinical signs. (*6*) Attempts to desensitize patients with tuberculous tracheobronchitis, using tuberculin, do not seem indicated. Attempts to control an allergic process by desensitization to any pertinent routine allergens, or by other effective means, seem legitimate and indicated."—*Allerby and Tuberculous Tracheobronchitis, W. H. Oatway, Jr., J. W. Gale & W. A. Mowry, J. Thoracic Surg., February, 1944, 13: 1.—(W. M. G. Jones)*

Pleurisy.—Out of 2,940 tuberculous patients, 44.2 per cent (males: 38.9 per cent, females: 49.4 per cent) had pleurisy with or without effusion prior to the onset of the parenchymal disease; 55 per cent of hematogenous tuberculosis, 32.5 per cent of infiltrative pneumonias, 52.7 per cent of hilar adenopathies and 100 per cent of extrapulmonary tuberculosis had shown, in the absence of preëxisting pulmonary lesions, pleurisy as the first sign of tuberculosis.—*Frequenza della pleurite quale manifestazione clinica della tubercolosi post-primaria, D. Onofrio & G. Vendetti, Lotta contro la tuberc., 1939, 10: 213.—(G. Simmons)*

Pleurisy.—Of 2,896 patients with tuberculosis, approximately 33 per cent had previously suffered from pleurisy with or without effusion. Tuberculosis following pleurisy was more frequently found in females than in males. No predilection for a certain age group was noted. Parenchymal manifestations arose most frequently within two years from the onset of pleurisy. Pleurisy must be considered tuberculous.—*Rapporti patogene-*

tici fra pleurite idiopatica e tubercolosi e loro importanza ai fini della prevenzione e assistenza, G. Leoncini, Difesa sociale, 1939, no. 6, 561.—(G. Simmons)

Pleurisy.—Out of 297 children with active primary complexes or with enlarged hilar lymph nodes, 18 subsequently developed pleurisy with effusion. On the basis of this observation the author believes that the majority of cases of pleurisy with effusion in childhood are part of the evolution of the primary complex. In adults, too, pleurisy with effusion often is due to tuberculous foci in hilar lymph nodes. In those cases in which the clinical symptoms are few and X-ray examination fails to reveal disease, except for enlarged hilar shadows, the pleurisy starts probably as a perifocal reaction, first limited to the mediastinal pleura and later extending to all of the pleural cavity. Several X-ray films taken before and after the onset of the disease are presented.—*Sulla pathogenesi della pleurite tubercolare, M. Accorimboni, Riv. di tisiol., 1940, 13: 285.—(G. Simmons)*

Pleural Infections with Gas Bacillus.—The medical literature contains few references to clostridium infections of the pleural space. These organisms may be found frequently in the sputum of patients with pulmonary tuberculosis, and occasionally in other bronchial secretions. An empyema due to the gas bacillus may therefore develop after lobectomy or in war injuries of the chest. These intrapleural infections, however, do not have the rapidly invasive character or the high mortality commonly associated with gas bacillus infection in injured muscles. The mortality rate in these cases is no higher than in other types of empyema. The treatment most effective is adequate drainage.—*Intrapleural Infection with Clostridium Welchii, J. K. Poppe, J. Thoracic Surg., August, 1944, 13: 340.—(W. M. G. Jones)*

Radiology of Pleura.—Radiological technique designed to better visualize the pleura as well as the interpretation of X-ray pictures thus obtained is discussed. The following projections are described: (*1*) cranio-dorso-ventral projection of Palmieri in which the direction of the X-rays is parallel to that of the ribs; (*2*) oblique projection of Lenarduzzi; (*3*) oblique monolateral tangential projection of Bagliani; (*4*) monolateral tangential caudo-ventro-dorsal projection introduced by the author. (The latter two are variations of the original position of Palmieri.) X-ray pictures obtained in these positions show the costal pleura which appears as a thin line and is called *stria opaca limitante di Correra* (Correra's opaque limiting line). Under normal conditions this line presents a slight convexity in the intercostal spaces, particularly in the upper part of the thorax. Straight lines and irregular lines are indicative of disease which finds its maximum expression in "Palmieri's opaque marginal band" (*bandelletta opaca marginale di Palmieri*) and which corresponds to the shadow described by Fleischner in X-ray films taken in the postero-anterior position. The diagnostic importance of such pictures is briefly discussed.—*L'indagine radiologica della pleura nella sua porzione costale, L. Pigorini, Riv. di tisiol., 1940, 13: 78.—(G. Simmons)*

Pleurisy with Effusion.—Unless another etiology can be proved beyond doubt, all exudative pleurisies must be considered tuberculous. Careful bacteriological studies, including not one but many cultures and guinea pig inoculations, will prove the tuberculous nature of such effusions in a much higher proportion of cases than is generally reported in the literature. Although various investigators have reported different figures, on the average of 73.5 per cent of all patients with exudative pleurisy show parenchymal X-ray changes due to tuberculosis. Depending on the method and number of examinations done, from 40 to 70 per cent of all effusions will yield tubercle bacilli. Pleurisy with effusion is an important manifestation of pulmonary tuberculosis. Thirty-three per cent of patients with pleurisy become ill with clinical pulmonary tuberculosis and, of these 33 per cent, 39 per cent die of their disease.

It is usually an easy matter to diagnose the effusion, but it is much more difficult to diagnose the underlying pulmonary lesion. Yet this is of the greatest importance in every case. Work-up has to include careful and if necessary repeated X-ray examination of the lungs after removal of the fluid, and repeated sputum examinations. When no sputum is available for examination, iodine may be given as a provocative, or gastric lavage is to be performed. Treatment of the effusion is of utmost importance because the future function of the underlying lung depends on it. If important lung lesions are found, the consensus is to replace fluid by air and maintain pneumothorax. However, even if no parenchymal lesion is found, replacement of fluid by air is advised. This avoids symphysis between the pleural leaves and prevents the formation of adhesions. Such treatment will prove extremely useful in the case where pulmonary tuberculosis demands institution of a pneumothorax at a much later date. Aside from this, obliteration of the potential space between the layers of the pleura cripples the patient's respiratory function and reduces his breathing capacity seriously. If, at a later time, collapse therapy is indicated on the opposite side, such treatment may have to be withheld because of marked reduction in respiratory function due to antecedent pleural effusion. Replacement of fluid with air and maintenance of pneumothorax until the inflammation subsides preserve the respiratory function of the lung and, if pneumothorax should become necessary at a later date, it can usually be given. It is advised that the fluid be aspirated during the second week of the effusion. At this time the fever is no longer high and the fluid does not accumulate rapidly. All fluid should be removed at once and be replaced by 200 to 300 cc. of air at intervals while the fluid is removed. Finally air is withdrawn again so that only a small pneumothorax space is maintained. This is to be refilled for two or three months providing the space remains dry. If fluid reaccumulates it is to be aspirated with air replacement, and pneumothorax is continued until two or three months of treatment with a dry space have been given. Because pleurisy with effusion is just one phase of pulmonary tuberculosis, sanatorium treatment over and beyond the few months necessary to cure the effusion is advised. Within one year 10 per cent of all patients with effusions develop clinical tuberculosis.—*Etiologie, prognostic et traitement de la pleurésie exsudative, D. Michetti, Schweiz. med. Wchnschr., April 8, 1944, 74: 354.*—(*H. Marcus*)

Intercostal Nerve Block for Pleuritic Pain.—In 14 patients who suffered from severe pleuritic pain from pneumonia or plumonary infarct, intercostal nerve block was performed. The pain was relieved within five to ten minutes following the injection. In 13 patients the relief was permanent, in one reinjection of the nerve was successful and in one reinjection combined with morphine medication resulted in complete relief from pain. The prolonged relief obtained by the treatment cannot be ascribed to the anesthesia alone. The increase in the depth of the respiration following the disappearance of the pain, that is, the increased motion of the pleura may be connected with the permanent relief from pain. The injection is given in the posterior axillary line or anterior to it, corresponding to the intercostal spaces over which tenderness can be elicited. Two cc. of a one per cent solution of procaine hydrochloride were used.—*The Relief of Acute Pleuritic Pain by Intercostal Nerve Block, H. J. Price, J. A. M. A., November 6, 1943, 123: 628.*—(*H. Abeles*)

Azochloramid-T in Tuberculous Empyema.—The technique used by Palitz was adopted in the treatment of 32 consecutive tuberculous empyemata. Reëxpansion was achieved in 65.2 per cent of cases without patent bronchopleural, the results comparing favorably with other methods of treatment. The usual sequence of events is that the fluid which at first is thick and purulent and contains tubercle bacilli, gradually becomes thinner. The tubercle bacilli become more scanty and are first absent on direct examination and later on

culture. No serious reactions or complications were encountered as a result of the irrigating fluid. Occasionally there has been a moderate pyrexia which always settled in twenty-four hours.—*The Use of Azochloramid-T in Tuberculous Empyema, D. Munro-Ashman & M. G. Tate, Tubercle, November, 1943, 24: 181.*—(*E. H. Rubin*)

Female Genital Tuberculosis.—Data are presented of 62 cases of proved genital tuberculosis admitted to the University of Michigan Hospital during the last twenty years, with follow-up studies on all cases. There were no clinical signs or symptoms pathognomonic of pelvic tuberculosis. Sixty per cent of the patients were in the childbearing age. Forty-three and one-half per cent of the married patients had not conceived. One-half of the patients (51.6 per cent) revealed no evidence of active extragenital tuberculosis. When operative treatment is indicated, all the genital organs including the cervix should be removed if possible, even though the latter appears grossly normal. Wound complications (infection and fistulae) are much more common after incomplete operations. Seventy-four per cent of the patients in this series are alive an average of 10.5 years after their first admittance. Fifty-four per cent of the survivors claim good health with no untoward symptoms.—*Genital Tuberculosis in the Female, R. L. Haas, Am. J. Obst. & Gynec., July, 1944, 48: 69. (Author's summary.)*—(*G. C. Leiner*)

Pelvic Tuberculosis.—Scant concern has been given roentgen therapy of pelvic tuberculosis in the female in this country as compared with its wide utilization in Europe. Only a few United States persons have reported cases; among these are Lord, Polak, Smitz, Jameson, Linz and Corscaden. All but 22 of 258 references listed by Bickenbach are German, and the majority of the remainder are French. In 1898 Ausset and Bedart reported a successful treatment of peritoneal tuberculosis resistant to other forms of therapy. In 1907 Bircher reported 26 cases of tuberculous peritonitis improved or cured by X-ray. Since this period little attention appears to have generally been given this method, it having been revived only sporadically in some clinics. Tuberculosis of the genital tract in women is frequently also accompanied by peritoneal tuberculosis. Disease of endometrium alone is unusual and Novak believes it is always secondary in disease in the tubes, while Bickenbach believes it is present in 50 to 70 per cent of cases with tubal disease. The commonest type of tuberculous pelvic disease is tuberculosis of the tubes and pelvic peritoneum or a combination of the two. Smitz says that 3 per cent of female cadavers show genital tuberculosis and 10 per cent of chronic tubal inflammation is tuberculous. The author reports only 94 cases of pelvic tuberculosis on 27,160 gynecological admissions at Woman's Hospital. Surgical treatment is of two types, the conservative, removing only diseased tissue, and the radical favored by many because of the impossibility of determining the extent of the disease macroscopically. Other surgical procedures include laparotomy for diagnosis and removal of pus and fluid and aspiration of ascitic fluid. X-ray procedures include primary X-ray therapy, irradiation after conservative and radical surgery and irradiation of recurrences. Primary treatment is of limited value as some sort of surgical procedure will be required for most cases for diagnosis, and the treatment of supposed tuberculosis seems completely unwarranted. No adequate diagnosis can be made in most cases without curettage or exploratory laparotomy. Having determined the presence of the disease, the question presents as to the value of X-ray therapy as weighed against further surgery or combined with it. Gauss and Gal both believe that early disease does well with either surgery or X-ray while late cases do poorly with either. However, a clean, apparently successful operative removal may be followed by recurrence for which X-ray therapy may be effective. Surgeons prefer to operate from mental habit and because they consider surgery a shorter procedure. However, against surgery

is the operative mortality, the occurrence of postoperative fistulae, the possible production of miliary disease, the danger of injury of bladder and rectum and the likelihood that tissues left behind may be already involved. X-ray has no effect on pyosalpinx, ascitic fluid or abscess material and should be avoided in pregnancy. It is most successful in the dry form of peritoneal tuberculosis but is also of benefit postoperatively after removal of fluid and debris. Protection of ovaries also should be considered in the childbearing period. Mixed infections should be considered on individual merits. When disease of endometrium alone is diagnosed and no symptoms referrable to tubes or peritoneum present, it is probably best to try X-ray as primary procedure. When there are frankly diseased tubes, removal followed by irradiation is the method of choice, and in advanced tubo-peritoneal disease, combined treatment is also preferred. The worst prognosis is in cases of severe disease elsewhere although patients may obtain palliation of symptoms from X-ray treatment. Attempts to evaluate results from various clinics are difficult because of frequent indefinite criteria for success. However, Wesseling, reporting X-ray series of 115 cases, reported 66 cures and 24 improved. Gragert reported 44 cases with 22 cured, 9 improved and 5 dead. Bickenbach collected 910 cases from literature of which 617 received irradiation and 293 surgical treatment, his figures giving an excellent showing in favor of X-ray treatment repeated weekly for two to four times and with several cycles at varying intervals. Multiple foci are frequent. Large portals are common, and the author finds it difficult to understand their popularity except in wide-spread peritonitis, and even here he prefers to divide the abdomen into smaller fields. His dosage technique has varied over the years, but recent cases received 75 to 100 r, treatments not being repeated more than once a week. Eleven cases are reported by the author illustrating different treatment and stages of disease, including 4 cases of pelvic peritonitis, 6 with pelvic masses, 3 of which recurred after radical surgery and all 6 masses disappeared completely after irradiation. Four cases were improved symptomatically but were considered unsatisfactory in the end. One showed little improvement. Technique varies greatly. Gal prefers radium. X-ray dosages vary from the old "tuberculosis dose" to 5 per cent E.D., the average for many being 10 to 15 per cent E.D. Bickenbach gives 50 to 100 r tissue dose with doses and time interval varied according to need of patient and recommends larger doses to produce quick freedom from pain. Some use an anterior and posterior field. In conclusion, the author recommends X-ray therapy in adequately diagnosed cases of pelvic tuberculosis, removal of grossly diseased tubes and primary irradiation of endometrial disease. He feels X-ray is especially effective in localized recurrence following surgery.—*Roentgen Therapy of Pelvic Tuberculosis in the Female, H. C. McIntosh, Radiology, January, 1944, 42: 48.*—(*G. F. Mitchell*)

Pelvic Tuberculosis.—Tuberculosis of the reproductive system is the cause of sterility in approximately 10 per cent of female patients who seek advice in sterility clinics. These patients rarely present symptoms referable to the lower abdomen or pelvis. Among a series of 12 patients who were proved to have tuberculosis of the genital tract at laparotomy, only one complained of occasional attacks of lower abdominal pain. Physical findings are frequently normal or minor in comparison with the extent of disease. In this series of 12, 3 patients had negative examinations, 2 had the findings of retroversion and in only 7 adnexal disease was diagnosed. At operation, 6 patients had tuberculous salpingitis, 4 had pyosalpinx and tuberculous peritonitis and 2 had peritonitis and endometritis. Usually nothing can be done to relieve sterility, and adoption is advised. Operations are useful to remove the tuberculous focus provided adhesions are not too extensive. Ultraviolet radiation and X-ray therapy may be of value in some cases. Of the 12 patients covered in this report, none had signs of tuberculosis elsewhere in the body.—*Di*

Erfassung symptomlos verlaufender Unterleibstuberkulosen bei der Sterilitätsbehandlung, H. Scherer, Schweiz. med. Wchnschr., April 8, 1944, 74: 358.—(H. Marcus)

Tubal Pregnancy in Tuberculous Salpingitis.—Although both tubal pregnancy and tuberculous salpingitis are fairly common, the combination of these two is a rarity, probably because of (*1*) complete obstruction of the lumen of the tube, (*2*) lack of nutrition to fertilized ova, (*3*) difficulty in nidation owing to lack of healthy mucosa. The author describes the case of a thirty-five year old white female, in whom tubal pregnancy occurred first on the right, and then, two years later, on the left side. Histological examination revealed tuberculous salpingitis on both sides. The patient also had endometrial tuberculosis and inactive pulmonary tuberculosis.—*Recurrent Tubal Pregnancy in Tuberculous Salpingitis, H. A. Pink, Am. J. Obst. & Gynec., September, 1944, 48: 427.—(P. Lowy)*

Renal Tuberculosis.—Renal tuberculosis is associated with extrarenal tuberculous lesions in a large percentage of cases. The incidence of calcified mesenteric lymph nodes in cases of tuberculosis of the kidney is 13 per cent, where as it is only 6 per cent in patients with nephrolithiasis unassociated with tuberculous lesions. Tuberculous epididymitis and prostatitis are found in 42 per cent of cases with renal tuberculosis, whereas no case was found in a control series of 93 patients with nephrolithiasis. Evidence of healed or active reinfection type of pulmonary tuberculosis was associated with tuberculous kidneys in 34 per cent of the cases, as contrasted to 4 per cent in the nontuberculous group. Healed primary complexes were present in the same percentage of cases in both groups. Knowledge of the frequent occurrence of extrarenal tuberculosis in cases of renal tuberculosis should facilitate arriving at a definite diagnosis.—*Extrarenal Tuberculous Lesions Associated with Renal Tuberculosis, D. S. Cristol & L. F. Greene, New England J. Med., September 21, 1944, 231: 419.—(H. Marcus)*

Tuberculous Peritonits.—This condition is difficult to diagnose clinically. Acute and chronic forms are recognized. Acute peritonits may be part of a generalized miliary tuberculosis or it may be localized due to infection from a neighboring lymph node. Chronic peritonits may result from perforation of tuberculous ulcers, from lymphatic channels or from blood-stream dissemination. The amount of exudation depends on the activity of the process. In the end all cases of peritonitis tend to be dry and adhesions are the rule. The loops of intestine are matted together and the mesentery becomes enormously thickened. Simultaneous involvement of the uterine tubes is frequently seen, leading to speculation as to whether a tuberculous salpingitis could at times be the source of peritonitis. Clinically the patient presents complaints of vague abdominal pain which is rarely severe, weight loss, and fever which may be low grade or septic in type. Abdominal distention due to fluid may be quite marked. X-ray examination of the gastrointestinal tract may enable the roentgenologist to make a definite diagnosis. A scout film of the abdomen shows low grade ileus with or without fluid. Studies of the large intestine with barium show the colon to be fixed in position. After evacuation of the barium enema it retains its low location even after the patient assumes the upright position. Studies of the small intestine also show a lack of normal motility. The barium passes through abnormally rapidly. The loops of bowel are matted together, and the spaces intervening between the loops are frequently widened.—*Roentgen Features of Chronic Tuberculous Peritonitis, J. J. McCort, Arch. Surg., August, 1944, 49: 91.—(H. Marcus)*

Intestinal Malabsorption with Tuberculosis.—A sixteen year old white boy was first seen in 1935 when he gave the history of increasing diarrhea for the past two years. As an infant, he had been fed raw milk from a tuberculous cow. In the following years the diarrhea became worse and the patient developed edema of the legs and face, and soreness of

the tongue. In 1940 the symptoms of tetany appeared. Laboratory examinations gave similar findings to those in the sprue syndrome: There was hypoproteinaemia, hypocalcemia, a flat oral dextrose tolerance curve, steatorrhea; however, there was no anemia, no achlohydria, a decreased basal metabolic rate and roentgen evidence of increased motility of the gastrointestinal tract. Kidney and liver functions were normal. Chest X-ray examinations showed nothing abnormal until May, 1943, when the signs of miliary tuberculosis were found. Intestinal obstruction developed. Laparatomy revealed a large retroperitoneal mass, consisting of caseating tuberculous mesenteric lymph nodes. The patient died a few days later. The autopsy showed generalized miliary tuberculosis. Retroperitoneally there was a doughy, semifluctuant mass, which contained multiple caseated areas. On microscopic examination the mass was composed of a fibrous tissue framework enclosing multiple small and large areas of necrosis. There was complete destruction of the lymphoid tissue and tubercle bacilli were seen. Symptoms similar to sprue occur in obstruction of the lymphatic vessels due to various chronic inflammatory diseases of the mesenteric lymph nodes.—*Intestinal Malabsorption Associated with Tuberculosis of Mesenteric Lymph Nodes, A. Klein & W. B. Porter, Arch. Int. Med., August, 1944, 74: 120.*—(*G. C. Leiner*)

Tomography in Bone Tuberculosis.—This method of X-ray examination is a valuable addition to the diagnostic possibilities of the conventional X-ray films in bone tuberculosis. A positive diagnosis can be made sooner, the exact extent of the lesion can be better seen and treatment can be evaluated more readily. The fine structure of bone is not as easily recognizable as in the ordinary X-ray film due to the movement of the tube, and therefore tomograms of bone will not replace the conventional plates, but merely add information to their interpretation. The technique is also useful for dense bones, such as hip, spine and knee. In diagnosis of tuberculosis of the spine, frontal planes are more useful than lateral ones. Case reports show that the early spinal lesion is not in the anterior part of the vertebra, as was formerly believed, but it starts in the central or posterior portion of the body of the vertebra. Neither is narrowing of the intervertebral space an early sign of bone tuberculosis.—*Beitrag zur Tomographie der Knochen und Gelenke unter besonderer Berücksichtigung der Knochen und Gelenktuberkulose, E. Mordasini, Schweiz. med. Wchnschr., February 5, 1944, 74: 123.*—(*H. Marcus*)

Tuberculosis of Hip.—Successful treatment of tuberculosis of the hip requires from four to five years. Sunlight at high altitudes or sunlight in combination with sea climate affects the disease favorably, and sanatoria built in such locations can report the best results. Conservative treatment in such institutions heals approximately 60 per cent of tuberculous hips. The remaining 40 per cent develop abscesses and fistulae or become crippled as a result of pseudo-arthroses, subluxations and permanent shortening. These cases are better treated by operation in the second or third year of the disease. If isolated foci are present, the treatment of choice is resection, as is possible with lesions in the greater trochanter, the acetabular rim or the femoral neck. Resection of the hip joint itself is not successful because the disease usually progresses. The ideal treatment in these cases is extraärticular arthrodesis with fixation in optimal position. To this end a piece of bone with periosteum is chiseled out of the ileum about 1 cm. below the ileac crest. It is left attached at the base and is bent over and attached to the greater trochanter which has been incised for the purpose. This bony graft forms a bridge from the ileum to the trochanter and results in a firm arthrodesis. The end results are good in children and in adults. Healing of the involved hip joint procedes rapidly, pain disappears, fistulae disappear and a firm extraärticular joint results which permits weight-bearing without pain and without more deformity than a slight limp.—*Unsere Erfahrungen mit der extrafokalen Arthrodese der Hüftgelenktuberkulose*

beim Kinde und beim Erwachsenen, A. D. Chakar, Schweiz. med. Wchnschr., April 8, 1944, 74: 371.—(H. Marcus)

Levinson and Tryptophan Tests.—At the City Hospital, Cleveland, in studying 36 proved cases of tuberculous meningitis, the Levinson ratio was found to be positive in 50 per cent, negative in 44 per cent. The tryptophan test was positive for 21 per cent of 34 proved cases of tuberculous meningitis, but also positive for 11 per cent of patients ill with other diseases. The authors conclude that more patients ill with tuberculous meningitis than with any other disease show a positive Levinson ratio and a positive reaction to tryptophan, but neither of these two tests is pathognomonic.—*The Levinson Ratio and the Tryptophan Test: Comparative Value in the Diagnosis of Tuberculous Meningitis, F. A. Kriete, H. C. Epstein & J. A. Toomey, Am. J. Dis. Child., June, 1944, 67: 469.—(K. R. Boucot)*

Tuberculosis of Thyroid Gland.—Two forms of tuberculous involvement of the thyroid gland have been described, miliary involvement in generalized miliary disease and tuberculous abscess. The latter type is frequently not diagnosed clinically since other evidences of tuberculosis in the body may be lacking. In a review of 25 cases reported in the literature, and one additional case reported in this communication, the author found only 9 cases showing evidence of tuberculosis elsewhere in the body. The most common symptom is swelling of the thyroid, occasionally in a preexisting goitre. The other symptoms may be due to pressure by the enlarged gland on neighboring structures, such as on the recurrent laryngeal nerve. Differential diagnosis must include acute suppurative thyroiditis, nonsuppurative thyroiditis, hemorrhage into a cystic adenoma, malignant neoplasm, struma lymphomatosa, Riedel's struma, actinomycosis and gumma. The condition is treated by incision and drainage, with or without packing of the abscess cavity, or by excision. Postoperative sinuses may remain which heal eventually. The value of X-ray therapy or ultraviolet radiation remains doubtful. Purulent mediastinits is a rare and fatal complication following excision.—*Tuberculous Abscess of the Thyroid Gland, R. W. Postlewhait & P. Berg, Arch Surg., June, 1944, 48: 429.—(H. Marcus)*

Hepatosplenomegaly and Tuberculous Polyserositis.—A case of primary hepatosplenomegaly with secondary tuberculous polyserositis is presented. Two distinct phases could be observed in the clinical picture of this patient: First there was a hepatosplenomegaly accompanied by fever and a hypochromic anemia with leucopenia and lymphocytosis. This stage lasted for eleven months and was then followed by exudative peritonitis and pleurisy of six months' duration. At autopsy there were caseous tuberculosis of some abdominal lymph nodes and toxic hepatosis with scattered fibrocaseous foci in the liver. The spleen showed caseous necrosis and sclerotic hyperplasia and small hemorrhagic foci. The author considers this a case of clinically primary tuberculosis of the liver and spleen, pathologically secondary to tuberculosis of abdominal lymph nodes, from which the extension had taken place via blood vessels rather than via the lymphatics.—*Epatosplenomegalia e poisierosite tubercolare, A. Sega, Riv. di pat. e. clin. d. tuberc., 1940, 14: 385.—(G. Simmons)*

Pneumothorax at Altitude.—In accordance with Boyle's law a pneumothorax gases expand with increasing altitude. The authors therefore investigated human subjects with pneumothorax because of the importance of such behavior in air-transported casualties and they cite their results in 2 cases. X-ray films were taken at levels of 5,000 feet on standard size films; a Millikan oximeter attached to the patient's ear provided an estimation of the arterial blood oxygen; pulse and respiratory rates were recorded at 5,000-foot intervals; excess oxygen was given from ground level by standard B-L-B masks; ascent in a decompression chamber was made at the rate of 1,000 feet per minute. Of the 2 cases observed, one had a 20 per cent collapse and a

stable mediastinum, the other had a 50 per cent collapse and a movable mediastinum; they illustrated a marked difference in tolerance due to these factors. As greater altitudes were reached, the degree of collapse, pulse and respiratory rates increased while the oxygen percentage of the blood decreased. The patient with the smaller collapse was able to tolerate an altitude of 20,000 feet while the second patient felt most uncomfortable at 15,000 and compression was done at the rate of 2,000 feet per minute with rapid disappearance of symptoms. The authors conclude that (*1*) continued aspiration of the pleural cavity should be carried out in cases with bronchopleural fistual, (*2*) cases with sucking chest wounds should not be transported by air until the wounds have been prevented from sucking more air into the chest, (*3*) in cases of large pneumothorax, aspiration of air should be performed prior to the take-off, (*4*) flying altitude must be considered and (*5*) any distress from cough should be allayed. It is natural to assume that a small pneumothorax and a fixed mediastinum will probably give little discomfort even at 20,000 feet.—*Investigation of Pneumothorax and Respiratory Function at Altitude, E. W. Peterson, B. S. Kent, H. R. Ripley & D. R. Murphy, Canad. M. A. J., June, 1944, 50: 520.*—(*W. C. G. Munroe*)

Recurrence of Malaria after Institution of Pneumothorax.—Recurrence of malaria shortly after the institution of a pneumothorax was observed in 2 cases of pulmonary tuberculosis. The malaria had been clinically silent for a long period and recurred in both cases within twenty-four hours after the induction of pneumothorax. The author believes that the lungs act as a filter for bacilli, as well as for parasites, and that microemboli, consisting of infected red blood cells, may be forced back into the general circulation following the institution of collapse therapy, thus causing an acute relapse of malaria.—*Recidiva malarica dopo l'istituzione di pneumothorace terapeutico, B. Besta, Riv. di tisiol., 1940, 13: 91.*—(*G. Simmons*)

Early Pneumonolysis.—The data on nearly 8,000 cases of pneumonolysis are critically analyzed and evaluated. This series includes 55 cases done by the author, and over 2,000 cases collected by Moore in 1934. Thoracoscopy and pneumonolysis in suitable cases are an essential part of pneumothorax, a fact which some physicians forget. Indeed, it is impossible to assess the results in a pneumothorax series until it is known whether pneumonolysis has done or not, and whether it was complete or only partial. Of course, a concentrically free collapse should be the aim of all pneumothorax. In many cases the presence of adhesions or their operability can only be determined by a thoracoscopy which is harmless; the earlier this is done the better. In unsuitable cases the lung should be re-expanded and treated by some other method, usually thoracoplasty. The division of adhesions preventing satisfactory lung collapse results in improvement in the mechanical character of the collapse, and is the only direct result of the pneumonolysis, barring complications. The postoperative complications are also reviewed. Mortality from all causes was only 1 per cent, chiefly by lung trauma, infection and intrapleural hemorrhage. Trauma and infection are usually caused by defective judgment and failure to recognize inoperable adhesions. Hemorrhage generally is the result of accidental injury to a vessel. Adhesions, especially short ones, should not be divided, but rather released at the parietal end, or left alone. The incidence of complications is about equal with electrocautery or galvanocautery. Most surgeons still prefer the latter. Sputum conversion was obtained in 73 per cent of cases (average). These clinical results of improved collapse are attributed to the pneumothorax and are reported as such. The author makes a strong plea for thoracoscopy or pneumonolysis early in the course of a pneumothorax when collapse is not perfect or when sputum remains positive.—*Closed Intrapleural Pneumonolysis, J. Goorwitch, J. Thoracic Surg., June, 1944, 13: 233.*—(*W. M. G. Jones*)